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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,782	04/09/2004	Bernhard Forstl	071308.0546	1453
31625	7590	08/21/2007		
BAKER BOTTS L.L.P. PATENT DEPARTMENT 98 SAN JACINTO BLVD., SUITE 1500 AUSTIN, TX 78701-4039			EXAMINER KISWANTO, NICHOLAS	
			ART UNIT 3609	PAPER NUMBER
			MAIL DATE 08/21/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/821,782

Applicant(s)

FORSTL, BERNHARD

Examiner

Nicholas Kiswanto

Art Unit

3609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

KHOI H. TRAN  
SUPERVISORY PATENT EXAMINER

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 4/5/2007; 4/5/2006.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 6, 7, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 6, 7, and 11 all use the phrase "microcontroller and/or by a superordinate unit". The use of "and/or" makes it unclear whether the claimed invention uses a microcontroller, a superordinate unit, or both.

3. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, because there is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation "the additional hardware compared to known system is essentially combined in the microcontroller". There has been no previous reference or declaration of "additional hardware" before this recitation in claim 9. Therefore, claim 9 is rejected for insufficient antecedent basis.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 6 – 8, 11, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modgil (#6,629,050), henceforth referred to as Modgil/050, in view of Arnold (#6,545,852), henceforth referred to as Arnold/852.

As to claim 1, Modgil/050 shows a method for increasing the safety of operation of an electrical component (col 7, line 26 – 28), in particular of electrical components in a vehicle (col 7, line 27), with a microcontroller actuating a load (col 13, line 40 – 46).

However, Modgil/050 does not show in the method active detection of a change in the switching state of a relevant load and performing diagnostics irrespective of the instant of actuation of the load by the microcontroller and/or by a superordinate control unit.

Arnold/852 shows active detection of a change in the switching state of a relevant load (col 17, line 41) and performing diagnostics (col 3, line 44) irrespective of the instant of actuation (col 17, line 42 - 44) of the load by the microcontroller (col 17, line 44 – 46) and/or by a superordinate control unit.

Thus, it would have been obvious to one of ordinary skill in the art to modify the invention of Modgil/050 with Arnold/852's further steps of active detection in order to achieve the predictable result of electrical safety since by using Arnold/852's method Modgil/050's invention would be able to monitor an electrical load regardless of instant of actuation.

As to claim 2, Arnold/852 further shows the diagnostic feedback being applied to a wake-up interrupt input of the microcontroller (col 17, line 44 – 46).

It would have been obvious to one of ordinary skill in the art to further modify Modgil/050's invention by using Arnold/852's method of using the interrupt input of the microcontroller as the diagnostic feedback since this is the technique commonly used in the art to detect an electrical signal regardless of instant of actuation.

As to claim 6, Modgil/050 shows a device for increasing the safety of operation of an electrical component in a circuit (col 7, line 26 – 28), particularly of electrical components in a vehicle (col 7, line 27), wherein a load is connected to a microcontroller for actuation (col 13, line 40 – 46).

However, Modgil/050 does not show means of actively detecting a change in switching state of the load, which are designed to act independently of the instant of active triggering of a microcontroller upon the microcontroller and/or a superordinate control unit.

Arnold/852 shows means of actively detecting a change in switching state of the load, where said means are designed to act (col 17, line 41) independently of the instant of active triggering of a microcontroller (col 17, line 42 – 44) upon the microcontroller (col 17, line 44 – 46) and/or a superordinate control unit.

It would have been obvious to one of ordinary skill in the art to modify the invention of Modgil/050 with Arnold/852's further steps of active detection in order to achieve the predictable result of electrical safety since by using Arnold/852's method Modgil/050's invention would be able to monitor an electrical load regardless of instant of active triggering of microcontroller.

As to claim 7, while Modgil/050 shows means for actuating a load via a microcontroller (col 13, line 40 – 46), it does not show means for performing diagnostics irrespective of the instant of actuation of the load by the microcontroller and/or by a superordinate control unit.

Arnold/852 shows means for performing diagnostics (col 3, line 44) irrespective of the instant of actuation (col 17, line 42 – 44) of the load by the microcontroller (col 17, line 4 – 46) and/or by a superordinate control unit.

It would have been obvious to one of ordinary skill in the art to further modify the invention of Modgil/050 by using Arnold/852's method of performing diagnostics irrespective of the instant of actuation by the microcontroller since it would achieve the predictable result of increasing the safety of the electrical load

actuated by the microcontroller since it would not rely on a certain time to activate, thus handling any electrical fault that might occur.

As to claim 8, Modgil/050 further shows a vehicle electrical system control unit (col 19, line 50 – 54) for switching in or disconnecting the load as specified by the microcontroller col 19, line 30 – 34).

As to claim 11, Modgil/050 shows a device for increasing the safety of operation of an electrical component (col 7, line 26 – 28), in particular of electrical components in a vehicle (col 7, line 27), with a microcontroller actuating a load (col 13, line 40 – 46).

However, Modgil/050 does not show in the device active detection of a change in the switching state of a relevant load and performing diagnostics irrespective of the instant of actuation of the load by the microcontroller and/or by a superordinate control unit.

Arnold/852 shows active detection of a change in the switching state of a relevant load (col 17, line 41) and performing diagnostics (col 3, line 44) irrespective of the instant of actuation (col 17, line 42 - 44) of the load by the microcontroller (col 17, line 44 – 46) and/or by a superordinate control unit.

Thus, it would have been obvious to one of ordinary skill in the art to modify the invention of Modgil/050 with Arnold/852's further steps of active detection in order to achieve the predictable result of electrical safety since by

using Arnold/852's method Modgil/050's invention would be able to monitor an electrical load regardless of instant of actuation.

As to claim 12, Arnold/852 further shows the diagnostic feedback being applied to a wake-up interrupt input of the microcontroller (852, col 17, line 44 – 46).

It would have been obvious to one of ordinary skill in the art to further modify Modgil/050's invention by using Arnold/852's method of using the interrupt input of the microcontroller as the diagnostic feedback since this is the technique commonly used in the art to detect an electrical signal regardless of instant of actuation.

6. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modgil/050, in view of Arnold/852, further in view of Ober (#6,665,802), henceforth referred to as Ober/802.

As to claim 3, Modgil/050 and Arnold/852 disclose the claimed invention as shown in above paragraph regarding claim 1.

However, Modgil/050 and Arnold/852 do not show that the diagnostic feedback input is a non-maskable interrupt.

Ober/802 shows the common and well-known method in the art of using a non-maskable interrupt input of a microcontroller (col 6, line 11 – 12).



It would have been obvious to one of ordinary skill in the art to use a non-maskable interrupt as the diagnostic feedback in the invention of Modgil/050 in order to further ensure that the diagnostic feedback signal would be handled regardless of instant of actuation or any other scenario since a non-maskable interrupt cannot be ignored.

As to claim 13, Modgil/050 and Arnold/852 disclose the claimed invention as shown in above paragraph regarding claim 11.

However, Modgil/050 and Arnold/852 do not show that the diagnostic feedback input is a non-maskable interrupt.

Ober/802 shows the common and well-known method in the art of using a non-maskable interrupt input of a microcontroller (col 6, line 11 – 12).

It would have been obvious to one of ordinary skill in the art to use a non-maskable interrupt as the diagnostic feedback in the invention of Modgil/050 in order to further ensure that the diagnostic feedback signal would be handled regardless of instant of actuation or any other scenario since a non-maskable interrupt cannot be ignored.

6. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modgil/050, in view of Arnold/852, further in view of Buecker et al. (2003/0196465), henceforth referred to as Buecker/465.

As to claim 4, Modgil/050 and Arnold/852 disclose the claimed invention as shown in the above paragraph regarding claim 1.

Modgil/050 further shows switch-in or disconnection of a load performed by a vehicle electrical system control unit (col 19, line 50 - 54).

However, Modgil/050 and Arnold/852 do not show a central locking motor being actuated as the load.

Buecker/465 shows a central locking motor of a vehicle being actuated ([0011]). It would have been obvious to one of ordinary skill in the art to use the invention of Modgil/050 in the actuation of a central locking motor such as that shown in Buecker/465 since any electrical load would have been suitable for actuation.

As to claim 14, Modgil/050 and Arnold/852 disclose the claimed invention as shown in the above paragraph regarding claim 11.

Modgil/050 further shows switch-in or disconnection of a load performed by a vehicle electrical system control unit (col 19, line 50 - 54).

However, Modgil/050 and Arnold/852 do not show a central locking motor being actuated as the load.

Buecker/465 shows a central locking motor of a vehicle being actuated ([0011]). It would have been obvious to one of ordinary skill in the art to use the invention of Modgil/050 in the actuation of a central locking motor such as that

shown in Buecker/465 since any electrical load would have been suitable for actuation.

7. Claims 5, 10, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modgil/050, in view of Arnold/852, further in view of Lee et al. (#5,996,045), henceforth referred to as Lee/045.

As to claim 5, Modgil/050 and Arnold/852 disclose the claimed invention as described in paragraph above regarding claim 1.

However, Modgil/050 and Arnold/852 do not show diagnostic means being used to determine whether a fault state can be eliminated by the microcontroller, wherein remedial action is initiated by a superordinate control unit if the microcontroller fails.

Lee/045 shows diagnostic means used to determine whether a command can be handled by a slave device (col 5, line 9 – 15), which is analogous to the microcontroller, wherein remedial action is initiated by a master device, which is analogous and indeed is, a superordinate control unit, if the slave device cannot handle such a command (col 5, line 19 – 21).

It would have been obvious to one of ordinary skill in the art to modify the invention of Modgil/050 by passing control from a microcontroller to a superordinate control unit if the microcontroller is unable to perform the specified task since that is a common and well-known method in the art in the event that a lower level device fails, as seen in Lee/045.

As to claim 10, Modgil/050 and Arnold/852 disclose the claimed invention as described in paragraph above regarding claim 6.

However, Modgil/050 and Arnold/852 do not provide diagnostic means for identifying a fault state which cannot be eliminated by the microcontroller, and wherein said diagnostic can also take remedial action.

Lee/045 shows a common and well-known diagnostic means for identifying a command that cannot be handled by a device (col 5, line 9 – 15), and the diagnostic means taking remedial action (col 5, line 19 – 21), in this case passing control to a master processor.

It would have been obvious to one of ordinary skill in the art to use Lee/045's diagnostic means with Modgil/050's invention in order to be able to handle a fault in case the lower level microprocessor is unable to perform such instead of leaving the fault unresolved. In fact, such a technique is a common and well-known method in the art when a controller and a superordinate unit exist in parallel.

As to claim 15, Modgil/050 and Arnold/852 disclose the claimed invention as described in paragraph above regarding claim 11.

However, Modgil/050 and Arnold/852 do not show a superordinate control unit coupled to the microcontroller, with superordinate control unit having means for performing diagnostic to determine whether a fault state can be eliminated by

the microcontroller, wherein remedial action initiated by the superordinate control unit if the microcontroller fails.

Lee/045 shows show a superordinate control unit coupled to a slave device (col 2, line 61 – 63 – col 3, line 66 – 67), with superordinate control unit having means for performing diagnostic to determine whether a fault state can be eliminated by the slave device (col 5, line 9 – 15), wherein remedial action initiated by the superordinate control unit if the slave device fails (col 5, line 19 – 21).

It would have been obvious to one of ordinary skill in the art to modify the invention of Modgil/050 by passing control from a microcontroller to a superordinate control unit if the microcontroller is unable to perform the specified task since that is a common and well-known method in the art in the event that a lower lever device fails, as seen in Lee/045.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Peterson et al. (#6,112,135) shows two microprocessors used in detecting electrical faults.

Nakagawa et al. (#6,088,513) shows a microcontroller with an electrical load connected to its non-maskable interrupt port.

Lilja et al. (#5,854,551) shows a microcontroller that regulates the voltage of a load through a non-maskable interrupt.

L'Esperance et al. (#5,543,776) shows an electrical system controlling a vehicle's central door locks among other loads.

Molnar et al. (2002/0195956) shows a microcontroller being informed of a voltage state change through its interrupt port.

Sato et al. (#6,065,316) shows the electrical system of a car door lock.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas Kiswanto whose telephone number is (571) 270-3269. The examiner can normally be reached on Monday - Friday, 8AM - 5PM, EST.

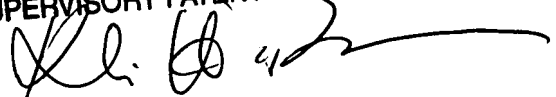
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on (571) 272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3609

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nicholas Kiswanto  
8/16/2007

KHOI H. TRAN  
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Khoi H. Tran', is written over the printed name and title.